

REMARKS

Receipt of the Office Action mailed February 26, 2001 is acknowledged. Claim 12 has been canceled and new claim 13 has been added. Support for the amendment can be found throughout the specification and claims as originally filed. Claims 1-11 & 13 are pending. Entry of the amendment and favorable reconsideration are earnestly solicited.

I. Objection to claim 12 under 37 C.F.R. § 1.75(c) as being improper, and rejection of claim 12 under 35 U.S.C. § 112, second paragraph, as being indefinite, and under 35 U.S.C. § 101 as being improper

The multiple dependency of claim 12 was removed by way of a Preliminary Amendment filed January 13, 1999. In order to overcome the § 112 rejection, claim 12 has been redrafted as new product claim 13.

II. Rejection of claims 6 - 10 under 35 U.S.C. § 102(e) as being anticipated by Hammer et al., U.S. 5,736,179 (Hammer '179)

Hammer '179 teaches a tubular food casing based on cellulose, which has a coating on the inner and/or outer surface. The coating includes chitosan which is chemically linked to the cellulose. A casing having the coating applied to the inner surface, can be peeled off easily. On the outer surface, the chitosan coating protects the cellulose from being attacked by cellulytic enzymes (i.e., cellulases). This is what is disclosed in Example 4 of Hammer '179. That is, Example 4 of Hammer '179 demonstrates the protecting ability against cellulases. The Hammer '179 reference does not teach or suggest a flat or tubular article based on hydrated cellulose having a surface modified by a time-limited action of at least one cellulase, as claimed.

Until the invention was made, cellulytic enzymes were regarded as absolutely unwanted and detrimental for articles based on hydrated cellulose such as food casings. Because once the casing is infected with cellulytic enzyme producing microorganisms, the degradation of the cellulose starts. This brings down the tensile strength of the casing and finally destroys it.

According to the present invention, the surface of the cellulose article is modified by cellulytic enzymes in a time-limited action. The modification prevents the casing from being attacked once again by cellulytic enzymes. Such a casing is not disclosed or

contemplated by Hammer '179. Accordingly, Hammer '179 does not anticipate the subject matter of claims 6 - 10. Reconsideration and withdrawal of the rejection are respectfully requested.

III. Rejection of claims 1 - 12 under 35 U.S.C. § 103(a) as being unpatentable over Miller, U.S. 4,388,331 9 ("Miller") in view of Hammer et al., U.S. 5,262,211 (Hammer '211)

Miller teaches a sausage casing based on collagen. Distributed uniformly throughout the casing is an immobilized enzyme which is activated during the smokehouse or cookhouse cycles. The enzyme cleaves proteins and hence is a proteolytic enzyme. It is well-known that enzymes are substrate-specific. As such, a proteolytic enzyme does not degrade cellulose or any substrate other than proteins. To become active, the proteolytic enzymes require a certain amount of water. Drying of the casing renders the enzymes inactive. Upon rehumidification the enzyme is reactivated (col. 4, lines 12 - 25).

Contrary thereto, in the claimed invention cellulytic enzymes are employed which are applied to the surface of the casing only and which are inactivated permanently (see claim 1). The cellulytic enzymes hence cannot be reactivated.

Hammer '211 does not cure the deficiencies of Miller. Hammer '211 mentions the problem that arises when cellulase-producing microorganisms (moulds) are growing on a cellulose-based casing. According to Hammer '211, the problem is solved by incorporating a specific fungicidal compound, i.e., di-i-didecyl-dimethylammonium salt, in the casing. The fungicidal compounds prevent the growth of these unwanted moulds.

According to the Office Action, the PTO proposes that it would have been obvious to have used the teachings of Hammer '211, on the degradation of fiber-reinforced hydrated cellulose casings by cellulase to extend the method of Miller to obtain a method of tenderizing hydrated cellulose casings. Applicants respectfully submit that one skilled in the art would not have been motivated to combine the references in the manner proposed by the Examiner. The suggested combination would result in a cellulosic casing having incorporated therein inactivated cellulytic enzymes which subsequently can be reactivated and thus can be used to tender the casing. This does not result in the claimed invention. Furthermore, it would have been very difficult to incorporate enzymes in a cellulose casing, since the viscose solution used for its preparation is strongly alkaline and would permanently denature any enzymes mixed into it. The combination of the two references

thus cannot render the subject matter of the present claims obvious. Reconsideration and withdrawal of the rejection are respectfully requested.

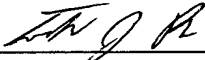
Applicants believe that the present application is now in condition for allowance. Favorable reconsideration of the application as amended is respectfully requested.

The Examiner is invited to contact the undersigned by telephone if it is felt that a telephone interview would advance the prosecution of the present application.

Respectfully submitted,

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